



MARCH 2021



## STRONG INDO-DANISH ENERGY COOPERATION PAVES THE WAY FOR INDIAN CLIMATE TARGETS AND GREEN JOBS CREATION

The Indo-Danish energy cooperation will contribute to a cost-effective green transition in India with focus on offshore wind, energy planning and integration of renewable energy. The Indian President Narendra Modi has repeatedly highlighted that *"Denmark has the skills, and India has the scale"*.

### The world's third largest CO<sub>2</sub> emitter has green ambitions

India is a huge country with the world's second largest population and one of the fastest growing economies. India is also the world's third largest consumer of energy, and due to the fact that the majority of consumption is based on fossil energy sources, the country is also the third largest CO<sub>2</sub> emitter in the world. Moreover, energy consumption and CO<sub>2</sub> emissions are set to increase significantly in the coming decades in India, and the country is facing massive public investments in the energy system.

However, India is also a country with great ambitions for the development and integration of renewable energy. The country has made ambitious commitments under the Paris Agreement, including that 40 percent of the electricity production capacity should come from non-fossil energy sources by 2030.

The IEA estimates that India will be one of the world's largest markets for renewable energy in the coming years. Electricity consumption is expected to triple by 2040, which corresponds to more than EU's total electricity consumption today. Therefore, the ambition in India is to incorporate

large amounts of renewable energy to support the growing energy needs. By 2022, 175 gigawatts of renewable energy must be installed, of which approx. 90 gigawatts were installed at the end of 2020. In addition, the Indian think tank CEEW estimates that this green transition can generate 1.3 million jobs in India in the same period.

The shift from fossil energy sources to energy sources such as wind and solar, where production fluctuates, place new demands on the power system. India is facing a major challenge in this regard to resolve how the country can best adapt the power system to the new energy sources and expand the power system without compromising security of the supply.

Denmark is a world leader in the green transition. The Indo-Danish partnership provides a unique opportunity to work together on achieving India's great ambitions on green transition.

### Denmark brings three core competences to the table

Denmark's experience and expertise can contribute to a cost-effective green transition in India, with a stable



electricity supply. As Indian President Modi has emphasized on several occasions: *“Denmark has the skills, and India has the scale”*. Denmark cooperate with India in three areas:

### 1) Offshore wind

Together, the Indian Ministry of New and Renewable Energy and the Danish Energy Agency will establish a Centre of Excellence, a regional virtual knowledge hub for offshore wind. The Centre will support the development of offshore wind in a planned and structured process so the wind power expansion can be carried out with less risk for investors and thus more cost-effectively. The Centre of Excellence will gather expertise on offshore wind and use it in India and regionally. India can benefit from unique Danish experiences such as the Danish one-stop-shop concept for permits for offshore wind, which streamlines crucial processes in the development of offshore wind projects.

### 2) Long-term planning and energy scenarios

The cooperation will focus on developing energy scenarios and long-term planning of the energy system, enabling political decision-making on a more informed basis. Through cooperation on improved energy scenarios and long-term planning, Indian decision makers can obtain a more accurate picture of the total costs and emissions associated with expanding power generation, as well as how it is implemented cost-effectively. The data basis for the calculations can be improved by involving several actors in the collection of data. Thus, investment decisions can become more solid and at the same time increase the ownership of the decisions in the Indian society.

### 3) Flexibility and integration of renewable energy

The cooperation focus on developing the power system for the integration of variable renewable energy based on Danish experiences. Examples of this are the development of improved grid codes, expansion of the power market, enhanced flexibility in thermal power plants, and forecasting of renewable energy production. Through this, the cooperation can contribute to integrate the planned 450 gigawatts of renewable energy by 2030 in a cost-effective way.

India has the world's largest operating synchronous electric grid, but it is a challenge to ensure a flexible grid with a high security of supply. However, Denmark has Europe's highest security of supply with electricity in the socket 99.996% of the time, while more than half of our electricity consumption is covered by renewable energy. Denmark can contribute with tools to ensure a stable operation of the grid, increase flexibility in power plants and better prediction of when the wind will blow.

## FACTS

- Denmark and India started their cooperation on energy in 2017, focused on offshore wind. Initially, amongst other things, a sector adviser was stationed at the embassy in Delhi. In 2020, the collaboration was expanded to include long-term energy planning and scenarios as well as flexibility and integration of renewable energy.
- Energy cooperation with India is financed by the Ministry of Foreign Affairs through the Danish Climate Envelope from 2020-2024.
- The program is implemented in collaboration with the Indian Ministry of New and Renewable Energy and the Indian Ministry of Power as well as their relevant institutions in India.

#### Contact person:

Simon Engfred Larsen  
Advisor  
snln@ens.dk  
Phone +45 33 92 38 55

